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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,330	08/29/2001	Michael Williams	1003-0607	7713

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Peter P. Scott
c/o Connie Del Castillo
LSI Logic Corporation
1551 McCarthy Boulevard, M/S D-106
Milpitas, CA 95035

EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,330

Applicant(s)

WILLIAMS ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-14, drawn to a process effluent abatement arrangement, classified in class 156, subclass 345.29.
 - II. Claims 15-20, drawn to a method of abating an etch gas product, classified in class 588, subclass 248.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process, for example, deposition gas abatement.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Anita Alanko and Peter Scott on January 28, 2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 8, 10, are rejected under 35 U.S.C. 102(b) as being anticipated by Alan Notman (USPat. 4,311,671). Alan Notman teaches a catalytic gas reactor (Figure 1; column 6, line 59 – column 7, line 31) including:

- i. An enclosure (10) which defines an interior void (Figure 1)
- ii. A first partition (16A; column 6, lines 59-68) having a first orifice (“central hole”; column 2, lines 1-15; column 7, lines 3-7) defined therein, the first partition being positioned within the interior void such that:
 - a. The first partition divides the interior void into a first chamber (12A) and a second chamber (12B) and
 - b. The first orifice is in fluid communication with the first chamber and the second chamber (Figure 1; column 7, lines 3-7)

- iii. A gas connector (conduit 34) which has:
 - a. A passageway (34) defined there through and
 - b. A gas port (30) in fluid communication with the passageway and supplied by a gas source (see arrow entering 30; column 7, lines 1-10), the passageway having an inlet (34) and an outlet (32) and being in direct fluid communication with the first chamber (12A) of the enclosure
 - c. The gas source is advanced into the passageway (34) of the gas connector (conduit 34) via conduit 26
- iv. A gas dispenser (28A/B) in direct fluid communication with the second chamber (12B) of the enclosure; and
- v. An exit port (50) in fluid communication with the interior
- vi. A second partition (16B) having a second orifice (holes in 16B, not labeled, see crossing arrows indicating flow) therein wherein
 - a. The second partition is positioned within the second chamber (12B)
 - b. The first orifice has a first central axis (collinear to central axis of 42)
 - c. The second orifice (holes in 16B, not labeled, see crossing arrows indicating flow) has a second central axis and the second central axis of the second orifice is offset (see Figure 1) relative to the first central axis of the first orifice

Alan Notman does not teach that the identity of a component of the gas source is water vapor gas ("humidified gas source"). However, it is well established that in apparatus claims it is inherent that Alan Notman's gas processing apparatus can process water vapor gas. It is well established that apparatus claims must be structurally distinguished from the prior art (In re Danley, 120

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USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does."
(emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525,
1528 (Fed. Cir. 1990), MPEP -- 2114)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Notman (USPat. 4,311,671). Alan Notman is discussed above. However, Alan Notman does not teach partitions, in Figure 1, beyond 3. As a result, Alan Notman does not teach fourth, fifth, and sixth partitions resulting in corresponding fourth, fifth, and sixth sub-chambers.

Alan Notman further teaches points on Alan Notman's partitions (16A,B,C) that are collinear with the chamber's longitudinal axis (Figure 1). Alan Notman further teaches adjacent partitions (16A/B; 16B/C) such that each partition forms corresponding sub-chambers by interposing the corresponding partitions (Figure 1). Alan Notman further teaches partition orifice that are in direct fluid communication (see arrows in Figure 1) with the first chamber and the corresponding sub-chamber. Alan Notman further teaches an end wall (22c, Figure 1).

Alan Notman further teaches plural orifice (holes in 16A,B,C; not labeled, see crossing arrows indicating flow) with corresponding central axis where each orifice's central axis is offset

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relative to the central axis of each other orifice. Alan Notman further teaches a longitudinal axis, as above, that divides the enclosure into a first and second half (Figure 1) where orifice of each partition are either located in the first or second half of the partition.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to duplicate Alan Notman's partitions thereby adding additional partitions to Alan Notman's catalytic gas reactor resulting in corresponding fourth, fifth, and sixth sub-chambers.

Motivation to duplicate Alan Notman's partitions thereby adding additional partitions to Alan Notman's catalytic gas reactor resulting in corresponding fourth, fifth, and sixth sub-chambers is to provide for longer residence time for the flowing gasses. Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

10. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundt (USPat. 5,137,701) in view of Alan Notman (USPat. 4,311,671). Mundt teaches an etch apparatus (12, Figure 1; column 1, lines 22-34) which generates an etch gas product (down stream of item 12), where the etch gas apparatus being in fluid communication with an enclosure (Figure 3) defining the process effluent abatement arrangement (18, 32, 16, 20, 36; Figure 1; column 5, lines 13-38).

Alan Notman is discussed above. However, Alan Notman does not teach an etch apparatus which generates an etch gas product, where the etch gas apparatus being in fluid communication with the gas connector such that the etch gas product generated by the etch apparatus is advanced into the interior void of the enclosure defining the process effluent abatement arrangement.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus.

Motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Notman (USPat. 4,311,671) in view of Thomas G. McGinness. (USPat. 5,384,051). Alan Notman is discussed above. Alan Notman further teaches heating elements (60,62) as heat exchangers that are in thermal communication with the gas provided by the gas source at exchanger 62. As a result, Alan Notman does not teach an electrical heating element that is in thermal communication with the gas provided by the gas source. Thomas G. McGinness teaches an electrical heating element (32, Figure 1; column 8, lines 55-62) that is in thermal communication with the gas ("carrier fluid/oxidizer mixture") provided by the gas source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Alan Notman's heating element with McGinness' electrical heating element.

Motivation to replace Alan Notman's heating element with McGinness' electrical heating element is to provide an alternate and equivalent means for heating.

12. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundt (USPat. 5,137,701) in view of Alan Notman (USPat. 4,311,671) and Thomas G. McGinness.

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(USPat. 5,384,051). Alan Notman and Mundt are discussed above. Alan Notman further teaches heating elements (60,62) as heat exchangers that are in thermal communication with the gas provided by the gas source at exchanger 62. As a result, Alan Notman does not teach an electrical heating element that is in thermal communication with the gas provided by the gas source. Thomas G. McGinness teaches a an electrical heating element (32, Figure 1; column 8, lines 55-62) that is in thermal communication with the gas ("carrier fluid/oxidizer mixture") provided by the gas source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add McGinness' heating element to be in thermal communication with the gas provided by the gas source of Alan Notman and Mundt, and to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus.

Motivation to add McGinness' heating element to be in thermal communication with the gas provided by the gas source of Alan Notman is to control the temperature of the gas provided by the gas source of Alan Notman and Mundt.

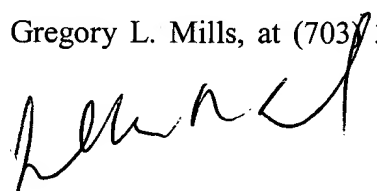
Motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 3,703,798; 5,011,520; 5,593,548; 3,722,185; 2,245,145; 4,999,302; 5,573,663; 3,607,000; 3,425,810; 3,702,619; 5,486,339; 4,411,877; 4,482,523; 5,756,048; 3,746,515.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.


JEFFRIE R. LUND
PRIMARY EXAMINER